

January 8, 1997
NARRATIVE FOR
BUTTE COUNTY, SOUTH DAKOTA
OIL & GAS DEVELOPMENT POTENTIAL MAP

INTRODUCTION

Butte County lies west of the Missouri River in northwestern South Dakota. The topography in this county is primarily rolling foothills coming off the Black Hills Uplift to the south. Geologically, Butte County is on the north flank of the Black Hills uplift and the southwestern flank of the Williston Basin. Currently, there is only one marginal producing oil well in the county and several shut-in low volume gas wells.

OCCURRENCE POTENTIAL

Oil & gas occurrence potential in Butte County ranges from high to moderate. Regional geologic mapping (Mallory, 1972, p. 56) indicates the eastern part of the county contains more than 5000 feet of sedimentary rocks. Mobil Oil drilled the 1 Mickelson in 1963 (Sec. 7, T. 9 N., R. 9 E.) and encountered 7086 feet of sedimentary rock before drilling into Precambrian gneiss. This is the same package of rocks which contain source beds and producing reservoirs in the adjacent Williston. Therefore, this portion of the county has been classified as high occurrence potential.

The rest of the county has been classified moderate occurrence potential with only an average of 2000-5000 feet of sedimentary rocks with source beds and reservoir rocks similar to the adjacent Powder River Basin.

DISCUSSION OF DEVELOPMENT POTENTIAL RATINGS

No part of Butte County has been designated as high development potential, because of the lack of commercial oil and gas wells. The one producing oil well in Sec. 23, T. 10 N., R. 1 E. produces little oil with high volumes of water. The shut-in gas wells scattered throughout the county tested low volumes of gas (<100 MCFGPD) with no short term prospect of being hooked up to a pipeline.

However, all of Butte County is classified moderate development potential because of the numerous wells that have encountered sub-commercial gas shows in the Cretaceous Eagle and Shannon Formations and the presence of Pennsylvanian Minnelusa oil in some scattered wells. Wildcatting and limited development in the Cretaceous Eagle-Shannon interval and the Pennsylvanian Minnelusa Formation may occur in this county in the next 15 years.

REFERENCES CITED

Mallory, W.W. (ed.), 1972, Geologic atlas of Rocky Mountain Region: Rocky Mountain Association of Geologists, p. 56.